REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 4-9 are pending in the present application. Claims 1-3 are cancelled and Claims 4-9 are added by the present response.

Support for additions to the claims can be found, at least, in the specification as originally filed. Specifically, Claims 4 and 7 are supported on page 227, lines 15-18, page 229, lines 2-11, page 276, lines 4-11, page 277, lines 6-24 and Figures 137, 138 and 139. Support for Claims 5 and 8 is found in Figure 139. Support for Claims 6 and 9 is found on page 227, lines 9-18. Thus, no new matter is added.

In the outstanding Office Action, the title was objected to as including informalities; Claims 3 was objected to as including informalities; Claim 1 was rejected under 35 U.S.C. §103(a) as unpatentable over Endoh et al. (U.S. Pat. No. 6,654,337, herein "Endoh") or Akihiko (JP 10-222874); and Claims 2 and 3 were rejected under 35 U.S.C. §103(a) as unpatentable over Endoh or Akihiko in view of Yutaka et al. (JP 2001-331944, herein "Yutaka").

In regard to the objection to the title, the title has been amended to provide a title more descriptive of the claimed invention. Accordingly, Applicants respectfully request that the objection to the title be withdrawn.

In regard to the objection to Claim 3, Claim 3 has been cancelled, thus the objection to Claim 3 is moot. Accordingly, Applicants respectfully request that the objection to Claim 3 be withdrawn.

In regard to the rejections of Claims 1-3 under 35 U.S.C. §103(a), Claims 1-3 have been cancelled. Accordingly, Applicants respectfully submit that the rejections of Claims 1-3 are moot.

New Claim 4 recites, in part,

> a system lead-in area in which first information is recorded, a first signal, to be processed by a level slice method and demodulated, being obtained from the first information;
>
> a data lead-in area in which second information is recorded, a second signal, to be processed by a partial response maximum likelihood (PRML) method and demodulated, being obtained from the second information; and
>
> a data area for recording user data,
>
> wherein a minimum pit length in the system lead-in area is longer than a minimum pit length in the data lead-in area.

Claim 7 recites similar features.

As is described on page 1, lines 24 to page 2, line 25 of the present specification, in an information recording medium of any standard, a reference code is recorded in a lead-in area. An emboss (concave and convex) shaped pit is recorded in a lead-in area for recording a reference code.

In the DVD-ROM field, with respect to a depth of this pit, when a laser wavelength is defined a λ, and a refraction index of a substrate is defined as "n," $\lambda/(4n)$ is considered to be an optimal depth. In the DVD-RAM field, a depth of pt of a lead-in area is equal to that of the groove in a recording area (data area). A condition in which a cross-talk in the recording area is minimal is generated such that $\lambda/(5n)$ to $\lambda/(6n)$ is considered to be an optimal depth. Thus in both DVD-ROM and DVD-RAM, the depth of the pit in the lead-in area is sufficiently large, and thus, a large reproduction signal amplitude can be obtained from the pit in the lead-in area.

In contrast, in the current DVD-R technology, the depth of groove in a recording area is very small, and thus, a large reproduction signal amplitude cannot be obtained. Thus, there has been a problem that any lead-in information which is constantly reproduced cannot be recorded in this area.

The claimed invention solves the above noted problem with respect to a recording medium with a small pit depth by making a minimum put length in the system lead-in area longer than a minimum pit length in the data lead-in area. Therefore, as described on page 228, line 24 to page 229, line 1 of the present specification, signal reproduction is facilitated from the shortest pitch, making it possible to carry out signal reproduction from the system lead-in area in the write once information recording medium which is small in pit depth.

Contrary to the claimed invention, Endoh teaches that pit tracks formed of a pit string 201 (in a read-in track area) and groove track 202 (wobbling grooves) in a data recording area are formed as a sequential spiral-shape on a surface of a substrate. The read-in track area is formed between a radius of 14.5 mm and 16.0mm and the data recording area is formed between a radius of 16.0mm and 30.5mm. The ratio of the pit track pitch to the groove track pitch is from 1.00 exclusive to 1.13 inclusive. If the recording medium is an MD, it is preferable that the absolute value of the groove track pitch is 1.60 μm or less, for example, 1.51 μm. This value is preferable because it allows a high capacity capable of recording/reproducing for longer time than ordinary MD by narrowing the track pitch. However, a wider track pitch larger than 1.60 μm exclusive may be used if long-time recording/reproducing is not required.

The pit track pitch can be set to be 1.70 μm in the case of 1.60 μm-groove track pitch and to be 1.60 μm in the case of 1.51 μm-groove track pitch, for example. At this time, the ratios of both track pitches are 1.063 in the first case and 1.060 in the second case. In both cases, the ratio is within the range of 1.00 exclusive and 1.13 inclusive.

Thus, Endoh does not teach that the medium comprises a system lead-in area and a data lead-in area where the minimum pit length on the system lead-in area is longer than the minimum put length in the data lead-in area as is recited in the claimed invention.

Akihiko describes in Figure 4 that the track pitch of a lead-in (Lin) field is increased and the linear density for recording the Lin field is lowered.[1] However, Akihiko does not cure the deficiencies of Endoh with respect to a system lead-in area and a data lead-in area where the minimum pit length on the system lead-in area is longer than the minimum put length in the data lead-in area.

Yutaka describes using a PRML method as a reproduction signal processing method instead of the level slice method when the SNR is lowered.[2] Further, Yutaka describes that the reproduction signal processing system includes a level slice system 23 for a signal from header areas 3 and 8 (which has less detection delay) and a PRML system 24 for a signal from a user data area 11 (which is able to perform a high density recording).

However, Yutaka does not describe or suggest that a recording medium comprises a system lead-in area and a data lead-in area. Thus, Yutaka does not teach or suggest that the PRML method is used for processing the read signal from the data lead-in area and the level slice method is used for processing the read signal from the system lead-in area.

Accordingly, Applicants respectfully submit that Claims 4 and 7 and claims depending therefrom patentably distinguish over Endoh, Akihiko and Yutaka considered individually or in any proper combination.

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[1] Akihiko, 0019
[2] Yutaka, 0013

Consequently, in view of the present amendment and in light of the above comments, no further issues are believed to be outstanding, and the present application is believed to be in condition for allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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